

Appl. No. 10/765,752
Reply to Office Action of December 27, 2006

WHAT IS CLAIMED IS:

Claims 1. – 11. (Cancelled)

12. (Previously Presented) An optical communication module for performing single-core bi-directional communication, comprising:

an optical fiber;

a light-emitting element for emitting light; and

a photoreceptor element for receiving light,

wherein said optical fiber has an end face at one end, said end face having an angled portion forming a reflecting surface;

wherein either one of said light-emitting element and said photoreceptor element is arranged adjacent to an end of the fiber along an axis of light propagation and faces said end face of said optical fiber, and the other of said light-emitting element and said photoreceptor element is arranged adjacent an outer surface of said optical fiber in a radial direction from the center of the optical fiber and faces said reflecting surface; and wherein said photoreceptor element is arranged outside a maximum diffusion range of the light emitted from said light-emitting element, and

wherein said end face of said optical fiber further includes a non-angled portion.

13. (Previously Presented) An optical communication module according to claim 12, wherein said angled portion includes a portion of an end face of a core of said optical fiber.

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14. (Previously Presented) An optical communication module according to claim 13, wherein said photoreceptor is arranged adjacent an outer surface of said optical fiber in a radial direction from the center of the optical fiber and faces the reflecting surface and is positioned along said outer surface such that the photoreceptor is substantially beneath the angled portion of the end face of said optical fiber.

15. (Previously Presented) An optical communication module according to claim 12, wherein said angled portion of the end face of said optical fiber further includes a film formed over a surface thereof for improving the reflecting efficiency of the reflecting surface, and further wherein the non-angled portion of the end face does not include such a film.

16. (Previously Presented) A connector incorporating an optical communication module, said optical communication module comprising:

a circuit for performing conversion between an electric signal and an optical signal;

an optical fiber;

a light-emitting element for emitting light; and

a photoreceptor element for receiving light,

wherein said optical fiber has an end face at one end, said end face having an inclined part to form a reflecting surface;

wherein either one of said light-emitting element and said photoreceptor element is arranged adjacent to an end of the fiber along an axis of light propagation and faces

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said end face of said optical fiber, and the other of said light-emitting element and said photoreceptor element is arranged adjacent an outer surface of said optical fiber in a radial direction from the center of the optical fiber and faces said reflecting surface; and

wherein said photoreceptor element is arranged outside a maximum diffusion range of the light emitted from said light-emitting element, and

wherein said end face of said optical fiber further includes a non-angled portion.

17. (Previously Presented) A connector incorporating an optical communication module according to claim 16, wherein said angled portion includes a portion of an end face of a core of said optical fiber.

18. (Previously Presented) A connector incorporating an optical communication module according to claim 17, wherein said photoreceptor is arranged adjacent an outer surface of said optical fiber in a radial direction from the center of the optical fiber and faces the reflecting surface and is positioned along said outer surface such that the photoreceptor is substantially beneath the angled portion of the end face of said optical fiber.

19. (Previously Presented) A connector incorporating an optical communication module according to claim 16, wherein said angled portion of the end face of said optical fiber further includes a film formed over a surface thereof for improving the reflecting efficiency of the reflecting surface, and further wherein the non-angled portion of the end face does not include such a film.

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Please add the following new claims:

20. (New) The optical communication module according to claim 12, wherein the photoreceptor element is arranged outside a maximum geometric diffusion range of the light emitted from said light-emitting element, irrespective of any intervening light-blocking materials.

21. (New) The connector incorporating an optical communication module according to claim 16, wherein the photoreceptor element is arranged outside a maximum geometric diffusion range of the light emitted from said light-emitting element, irrespective of any intervening light-blocking materials.

22. (New) The optical communication module according to claim 12, wherein there is no material between the light-emitting element and the photoreceptor that is substantially opaque to light.

23. (New) The connector incorporating an optical communication module according to claim 16, wherein there is no material between the light-emitting element and the photoreceptor that is substantially opaque to light.

24. (New) The optical communication module according to claim 12, wherein there is no additional optical fiber located between said end face of said optical fiber and said either one of said light-emitting element and said photoreceptor element, and there is

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no additional optical fiber located between said outer surface of said optical fiber and said other of said light-emitting element and said photoreceptor element.

25. (New) The connector incorporating an optical communication module according to claim 16, wherein there is no additional optical fiber located between said end face of said optical fiber and said either one of said light-emitting element and said photoreceptor element, and there is no additional optical fiber located between said outer surface of said optical fiber and said other of said light-emitting element and said photoreceptor element.

26. (New) The optical communication module according to claim 13, wherein said angled portion of the end face of said optical fiber substantially bisects the core.

27. (New) The connector incorporating an optical communication module according to claim 17, wherein said angled portion of the end face of said optical fiber substantially bisects the core.

28. (New) An optical communication module for performing single-core bi-directional communication, comprising:

an optical fiber;

a light-emitting element for emitting light; and

a photoreceptor element for receiving light,

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wherein said optical fiber has an end face at one end, said end face having an angled portion forming a reflecting surface;

wherein either one of said light-emitting element and said photoreceptor element is arranged adjacent to an end of the fiber along an axis of light propagation and faces said end face of said optical fiber, and the other of said light-emitting element and said photoreceptor element is arranged adjacent an outer surface of said optical fiber in a radial direction from the center of the optical fiber and faces said reflecting surface; and wherein said photoreceptor element is arranged outside a maximum diffusion range of the light emitted from said light-emitting element.